CAPE AGRICULTURE:

IN TWO LECTURES,

DELIVERED AT THE CAPE TOWN MECHANICS' INSTITUTE

ON THE

1ST AND 15TH MAY, 1857,

BY

THE HON. F. W. REITZ, ESQ., M.L.C.

CAPE TOWN:
SAUL SOLOMON & CO., 63, LONGMARKET-STREET.

1857.

CAPE AGRICULTURE:

IN TWO LECTURES,

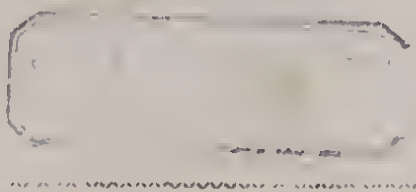
DELIVERED AT THE CAPE TOWN MECHANICS' INSTITUTE

ON THE

1st AND 15th MAY, 1857,

BY

THE HON. F. W. REITZ, ESQ., M.L.C.



CAPE TOWN
SAUL SOLOMON & CO., 63, LONGMARKET-STREET.

1857.

CAPE FARMING.

When Lord Byron pleaded *youth* as an excuse for the mediocrity of his first poetical attempt, and the critics of the *Edinburgh Review* retorted that no one had forced the young lord to inflict his "Hours of Idleness" upon the world, there may have been truth in what they said, however severe the remark. But I trust that, if I should have the misfortune to fail in my endeavour to interest the audience assembled here this evening, I shall be treated with more lenieney, on the plea that this colony does not abound so greatly in lecturers on agrieulture, as Europe did in poetasters.

I assure you, gentlemen, I have not many "hours of idleness" to plague me, and I can truly say that I offered my services to the committee of the Mechanics' Institute with very great diffidence.

In the first place, because to leeture in public was quite a novel undertaking with myself. Secondly, because I was afraid the subject was one which it would be extremely difficult to interest a mixed auditory in. And, lastly, to those who might be inclined to listen with greater perseverence and patience, it would be disappointing to spend their evening in merely having their attention drawn, as it were, to the heads of an intended discourse only—in fact, to hear a mere syllabus read, which is almost all that one or two lectures will admit of.

I found very great difficulty, also, in deciding upon a proper division of my subject; and I am perfectly aware, besides, that much of the information I intend to communieate may be stale, and already well known to many who hear me.

But if I shall have saved the greater number of those who favour me with their attention the trouble of collecting, from varions sources, at some sacrifice of time, facts which, at a future period, may lead them to further inquiry, under such favourable circumstances as they may individually, by chance, be placed in—and if such inquiry and observation induce them to offer the results to the consideration of our Cape agriculturists, I shall be amply repaid for the tronble I am taking.

It is by the more easy interchange of acquired information of a practical tendency, and by comparing and reasoning upon it, that society has made such rapid strides latterly. Men have begun to say, with the metaphysical Scotch ploughman—"If you'll gie us the light o' your candle I'll gie ye the light o' mine, and we'll baith see the better for it."

The theory of agriculture has, till very lately, met with but little encouragement; and the distrust with which scientific agriculturists have been looked upon, by practical farmers, may be ascribed, I think, to very obvious causes. Generally, those who have undertaken to write or to philosophise on farming matters, have been amateur performers, who have taken to the study as an amusement; and being, for the most part, ignorant of the frequent contradictions which practical experience offers to the inductions of science (an experience attainable only after careful observation during a long course of years), these philosophers have dogmatically insisted upon it that the results of their proposed new systems must be as infallible as if they were chemical experiments, performed in a laboratory, where every law could be proved clearly by synthesis and analysis.

On the other hand, within the present century, practical agriculturists in Germany and France, perhaps more than in England, have themselves acquired a certain amount of scientific knowledge, at any rate, sufficient to enable them to collect more correct data for the theoretical savant; and the chemist, the mechanical philosopher, the veterinary physician, the vegetable and animal physiologist, have been able to throw a clearer light on questions of vast importance to the rural economist: so that I think we may rejoice in the idea that the time cannot be far distant, when, with regard to manures and the mixture of soils, the fitness of plants for peculiar soils and peculiar culture, the construction of agricultural implements, the diseases of animals, and their anatomy in reference to food and climate, and to the purposes for which they are to be employed, there will be less misunderstanding; and the philosopher, in his closet, will, without ridicule, be able to instruct the practical farmer as to the general laws which should guide him in the pursuit of his labours, in every clime, and under every circumstance.

If I were not afraid of becoming too prolix, I think I could demonstrate that even to the politician or statesman a knowledge of the agricultural capabilities of the country for which he legislates is essential, inasmuch as the capacity of supporting a more or less dense popula-

tion must greatly depend on the nature of the climate and soil; and the whole system of religious and secular education, as well as the administration of justice and internal defence —need I add roads, bridges, and harbours,—must be modified according, not so much to the number of inhabitants, as to the distance at which they must neeessarily live apart.

My object, however, in this and a following lecture, shall be, to show that, in the introduction of our different breeds of live-stock, we have in this colony, in a great measure, been led by mere chance, and that there is still a wide field open for improvement; whilst with regard to our agricultural operations, the followers of the old system, as well as those who have often, with too much contempt for established custom, attempted to introduce novelties, have gone to work without any fixed rules to guide them. If it were asked why they who so easily discern these defects, and who so confidently point to a better future order of things themselves, have so little to show in the shape of improvement, I might say in general, as "Portia" in the "Merchant of Venice" said—"If to do were as easy as to know what were good to do, chapels had been churches, and poor men's cottages, princes' palaces. It is a good divine that follows his own instructions; I can easier teach twenty what were good to be done, than be one of the twenty to follow mine own teaching." But, in particular, I can answer better, that agricultural progress more peculiarly requires combined effort. I believe the most perfect, practieal, and theoretical agriculturist would, in a life-time, introduce few improvements, unless a considerable number of his fellow-labourers in the same field supported him with all their might. The observations and experiments in agriculture, upon which general laws ean be founded, require years for their completion; and individual observers contribute but a small store of information, compared to what can be done in other branches of knowledge.

Before proceeding with the subject more immediately reserved for this evening's lecture, I have one more circumstance to bring to the consideration of this meeting, as an apology for the scantiness or perhaps incorrectness of detail with regard to the state of agriculture in several districts of the colony, with which I am but partially acquainted, or of the agricultural capabilities, of which I eannot speak from experience; and it is this, that whilst, in other countries, tolerably aceurate statistics, and the history of the culture and progress of each country or district, are from time to time published—materials for a

review of the history of our colonial agriculture are scarce and seldom to be relied upon.

If I should, therefore, during the course of this lecture, betray very lamentable ignorance of the state of farming in the more eastern and northern districts of the colony, I shall be glad to submit to the correction of my fellow-agriculturists from those parts, if I can only provoke them to set me right by publishing their comments.

As no better or more desirable classification has occurred to me, I shall begin by speaking of horses, horned cattle, sheep, and other live-stock; then go on to the culture of the soil, or the different plants cultivated, the produce of which is consumed at home or exported. And, if our time permits, offer some general observations on the vast field open to improvement; under which head, roads, harbours, markets, agricultural societies and publications, museums, and education generally, though hardly classible as agricultural subjects, cannot, I am inclined to believe, be entirely excluded or objected to.

I begin, then, with the horse, and yet I do not exactly know why—except, as I have said before, that I have found it a most difficult, perhaps the most difficult, part of my task, to fix upon a proper arrangement of my subject; and the horse being, in all spelling-books, called a "noble animal," we may as well take him first.

I cannot find that horses were met with among the aboriginal tribes, when the first European settlers became acquainted with the colony; and although we read that Van Riebeek imported some Java ponies, with which, if I mistake not, he drew wood from the neighbouring forests, somewhere near Mr. Breda's fir plantation, I cannot tell when the oxen of the natives, which, at that time, were literally "not worth a button," were first made to pass under the yoke. I leave the history of their subjugation, as well as that of their owners, to the research of my friend, Mr. Watermeyer, and should be sorry to encroach on his domain, particularly whilst the origin of our Cape breed of horses may be got rid of in the same way that most historians get over similar difficulties, by saying that "it is buried in impenetrable obscurity."

That Spanish horses, greys, either from Andalusia or South America, were early imported is pretty certain, although the exact time appears not known. I am told that Mr. Cloete, the first proprietor of the Hope, in the district of Swellendam, introduced some of that breed, but it may be that his object was to prevent the stock already existing from further degenerating,—an attempt which, I am told,

has again been made very lately by the Messrs. de Jongh.

Be this as it may, it is well known that all that is hardy and capable of endurance in our common Cape horse derives its origin from what is known as the "spanyer." The weights carried, the thirst and privation endured, and the journeys accomplished by some of these animals, are perhaps not fully known. The race has almost become extinct; and the race of those who used to ride them is almost extinct also. So that the performances of "pasgangers" and "trippelaars," in former days, are probably lost to history; but our generation has seen enough to know that, in the introduction of the English blood-horse, the Holstein and other breeds, the peculiar fitness of these "ambling Spanish jennets" for our climate and pasture was, in a great measure, lost sight of; and I make no doubt that it would have been a wiser plan to have encouraged the rearing of each peculiar breed to perfection, rather than, by crossing almost exclusively with the blood-horse, to have well nigh obliterated the original hardy race altogether.

A gentleman,—who although, I believe, a clergyman, is a great horse fancier,—some years ago, after much disappointment in endeavouring to rear English horses, gave it as his opinion, in print, that the colony was adapted for zebras and quaggas only; and that the further any breed of horses receded from that standard, the more useless they would prove. Now, though I do not go the whole length with that writer, there is sense in what he says, after all; and I wish our farmers would think of the matter more than they have done.

There was a good deal written at the same time about camels and dromedaries; and I refer the proprietors of copper mines, those of the Paarl Kolben as well as others, to some letters which appeared in the *Zuid-Afrikaan* some years ago.

But I am digressing. An accurate writer says, "Climate has great influence over the form of animals, and that form is found indigenous to each which best fits it for the purposes required of it. In the arid plains of the East, where herbage is scarce, a form is given which enables its brute inhabitants to readily transport themselves from one spot to another;" and again, "Removed, however, to more temperate climes, where vegetation affords, by its luxuriance, more nutriment, we no longer see him equally small and slender," and so on.

Now, though we cannot shut our eyes to the general truth of this doctrine, whether, on the one hand, we regard the size of the Flemish and Lincolnshire breeds, or the

diminutive structure of the breeds of those countries where herbage is scanty, on the other, still there are so many counteracting influences, and it takes so long a period of time and so many generations for the natural influences of pasture and climate to alter the whole frame, both osseous and muscular, that the practical agriculturist would be guilty of great folly, were he to be deterred from artificially improving, by fresh crosses and judicious selection, the different breeds of animals which can be reared in his country; only, if we would not be disappointed in our efforts at improvement by artificial feeding, and care, and the other means referred to, we cannot discard the fact that climate has a tendency irrespective of the nutritiousness of the natural pasture to influence the size of several, if not all, races of animals, and that where exceptions do occur, these may be traced generally to accidental causes.

The extremes of climate of Java and the Indian Archipelago, and of the Shetlands and Lapland, indeed appear to have a similar effect; whilst the mountainous aspect of a country, its marshiness, or the extent of its plains, decidedly tell, in the course of time. upon the shape and structure of the bone, muscle, and general conformation.

We act wisely, therefore, in never losing sight of these general laws in our endeavours to produce an improved breed, suited to the altered wants of a community.

The immense number of different varieties of the horse will at a glance impress this important fact strongly on our minds.

I have been led to lay more stress and to speak more at length on this point, because I feel confident that great mistakes have been made in our system of horse as well as cattle-breeding. I speak as a practical man, addressing people possessed of common sense, and therefore, would not allude to vain puerilities of those great philosophers, who affect to believe man to have originally been an ourang-outang, gradually developed in the course of ages. Those who think it worth while to see Lamark refuted may read Lyell's remarks in his "Geology;" and without going into very learned argument on the question as to what constitutes genus, species, and variety,—for our purpose it is enough to know that all these are what we call horses, and that by crosses, and through the effects of causes such as have been repeatedly mentioned, to a certain and limited extent a mutation takes place in form and character.

The late Lord Charles Somerset, of whom I am glad I am not allowed to speak here as a politician, was a most

zealous agriculturist, but, in my opinion, was unfortunately too much a friend to the turf to foresee that, by encouraging the English blood-horse exclusively, a more hardy breed,—a breed capable of withstanding our periodical droughts, would become extinct; for independent of the calculation that a smaller or more ignoble race would require less food, and that consequently a greater number could be kept on the same pasture, it is well known, that the common Cape horse breeds better,—that in fact you may almost rear two foals for one of the finer sorts. Nor does it appear that we are in this respect less favourably situated than our neighbours in New South Wales, for I learn that, in that colony also, where they have abundance of room, they do not calculate upon rearing more than one foal from every two breeding mares, and except the heavier breeds of English horses (which are subject to the same objections), I find that English blood-horses principally have, until very lately, been introduced there; whilst perhaps frequent crosses with Arabs and Persians, and the like, would have suited their purpose in many respects, as well as it would ours.

There was a time when this colony was overrun with sheep, and when prices in the Indian market for well-bred Cape horses were more encouraging. It would have paid, partly to feed artificially, and in many districts to go on breeding horses with a great deal of blood; but unless oat-hay can be grown at one third the usual Cape Town price, I am afraid the breeding of such animals must become restricted to a very few, and only for the purpose of infusing periodically fresh blood into the studs of the great majority of our stock-farmers. What the colony will require most, will be a strong, active, muscular, but not a very large-sized horse, fit for roadsters on our long and dreary roads, for light carts and wagons, and for our cavalry forces. For postal purposes, for pleasure carriages, and for heavy carts used near towns and villages, a more handsome, a swifter, or a heavier breed may be cultivated to some extent; and I doubt not that in process of time, our farmers will begin to discover that a division of labour is advisable in this as well as other matters; and that it will answer the purpose of one man to breed carriage horses, another, heavy cart horses, and the generality, a breed such as I have described as likely to be in most universal demand.

If geldings were wanted for the Indian market, and the Indian Government could afford to pay £25 here, there are still many farms where a good supply might be kept up, but if only 3 or 4-year old entire horses are required, and

these must be fed and stabled for a year or two, double that sum, on an average, will not pay the breeder.

I speak confidently from experience, when I say that a dash of Arab blood is essentially necessary in this colony. They breed better, they withstand ticks, mange, and cutaneous diseases better; they require water less often, and can go further from the drinking-places in quest of food; require forage less when worked, and, I am very much inclined to think, are less liable to suffer from accidents and diseases in the bones of the legs.

In the fear that I may not be able to touch at all on some of the topics proposed at the commencement of this lecture, from the very brief space of time set apart for the purpose, I shall say no more with regard to the horse, having wished merely to draw the more particular attention of my fellow-farmers, commercial speculators, as well as those who æsthetically delight in a pair of fine carriage horses to the faultiness in our system of breeding, which it is not too late to remedy.

And as I may not have to revert to the subject, I would call attention to the altered state of this peculiar branch of our rural economy, owing to the increased demand for mules,—partly from the improvement in our roads, and partly from other causes.

There is this advantage that the disproportionate increase, in the numbers of a breed of animals, the surplus of which we can neither consume nor export, is checked by breeding mules; but it is difficult to say, in this colony, to what extent it should be carried. Calculations as to the probable price of live-stock are the most perplexing and uncertain imaginable. Soon after the ravages of the last horse-sickness, by which two-thirds, if not more, of the horses in the Swellendam district must have been carried off (the exact number that have died will never be ascertained with anything like correctness, for the so-called "pampoen lists" of the field-cornets are not worth the paper they are written on),—but, at any rate, the loss was immense. The price of horses, particularly of colts, was not at all increased in proportion. In fact Mr. Malan, and other extensive horse-dealers, who used to take three or four hundred colts out of our district every September, never asked for horses at all; but offered enormous prices for mules.

I have already remarked that a very large-sized horse does not answer for general purposes; but even, with regard to mules, I find that, except for carts on the hard road and Rondebosch, where strength is more required than speed, a middle-sized breed of mules is preferred.

Still I would advise those who have the opportunity of doing so to keep up a constant, though not too large a supply of jackasses from the north of France, or Malta, in the same way that I would not recommend the breeding of pure blood horses to be entirely discontinued by everybody.

I shall now, with your leave, go on to the next subject,—namely, horned cattle; and without going back to the time when a tinder-box or a few brass buttons were the money value of the stock bartered from the natives—and leaving what has been related by Kolbe, Le Vaillant, and other early travellers, to the admirers of the poetical and the fabulous, I proceed at once to the first account of an attempt, on anything like a considerable scale, to introduce a better breed from Europe. There is a little work, published by Mr. W. S. van Ryneveld in 1801, which gives the history of the establishment of a Government Agricultural Society (for everything was done through and by the Government in those good old times). We find there the names of the committee:—P. J. Truter, sen., J. J. Vos (president of the municipality), Jan Gysbert van Renen, Johannes Zoon, Dirk Gysbert van Renen, Rudolph Cloete, Servaas Breda, Johannes Paulus Eksteen. And here I may be permitted to exhibit some little vanity in claiming descent from one of the brothers Van Renen. Most people pride themselves in being able to trace their ancestry to some famous conqueror of men. I am content to own myself of the same blood as the Van Renens, who, three-fourths of a century back, began to breed woolled sheep—were the first to introduce Arab horses, London drays, and Dutch cattle—made cheese—imported the long-eared Bengal goat—shrewdly surmised that the bouquet and excellent flavour of wine was derived from the soil—and planted another Constantia to rival its predecessors. Nay, sent to Java and other places for a better breed of fowls—not to speak of the enterprise which led one of their number to travel through the Kafir tribes to the wreck of the *Grosvenor*—another to purchase cattle at Lattakoo, or to bring the first authentic account of the richness of Namaqualand in copper ore. They had no steam printing in those days, or the diaries and accurate observations recorded by these men,—the manuscripts of which are unfortunately lost and destroyed,—would be read with great interest now.

Well! the Bredas and Van Renens, and others, were active in their day and generation, in trying to cross the smaller indigenous breeds with the large Dutch kind, and, as is generally the case with all first crosses, they were astonished and delighted at the wonderful improvement a

few years had made; but, unfortunately, they laboured under some formidable misapprehensions, of which the following from the little book before me, are, I think, sufficient proofs. At p. 74, Mr. J. G. van Renen, at p. 78, Mr. Rud. Cloete, at p. 81, Mr. D. G. van Renen, at p. 85, Mr. Dreyer, all assert that the half-bred stand poorer keep, breed earlier and better, and that the draught oxen stand more work. Now, most of these men, and those mentioned on the committee, I can recollect well,—good, practical farmers, men of accurate and acute observation. As far as their experience went—a first cross, a dash of the Fatherland or Dutch, did improve the indigenous breed, as a first cross, an infusion of fresh blood will improve almost any breed, in so far as size, health, and hardiness extend. But these men could not, 60 years ago, have been expected to know, what time has since proved, that the thoroughbred, pure race of large Dutch cattle would have bred as badly, and stood poor keep as ill, as the pure Cape blood, and that for the requirements of the colony, the cross with native cattle, was in fact, an improvement on the fine short horns of Holland.

I say, experience has shewn this, after the lapse of years; but from the answers of the breeders already named, and from the summing up of Mr. Ryneveld, it appears that they were of opinion that the more thoroughbred Fatherland all the cattle in the colony could be made, the better. And before I leave this subject, I would remark that the result of first crosses does not militate against the theory of a comparatively (mind, I say comparatively) smaller sized animal being better adapted to a poorer keep; for if, after the first cross, it be impossible to keep up the *juste milieu*, by reverting to either of the original breeds for further procreation, it follows that from among animals of the cross-breed, and possessing the coveted characteristics, we must select breeding stock, for the purpose of rendering these characteristics permanent; and, therefore, we must betake ourselves to the system which Bakewell and others have followed.

Now, the difficulty in a colony like this is to find men who can afford to risk the chance of failure, and who can afford to wait patiently for years before they have established a breed. When successful, as in Bakewell's case, the incredible prices obtained are an abundant remuneration.

But, except in old countries, where capital abounds, such speculations are too long in bringing profit; and too uncertain to induce individuals to embark in them. Unless, therefore, something could be done, by means of companies

or by prizes, to reward the experimenter, whether successful or not, I see no hope of any peculiar breeds being created in the colony best suited to its various wants.

I may remark, in passing, that I have not anywhere met with a tolerable theory, founded on correct data, showing the causes which interfere or are favourable to a proper admixture, so to speak, of the different characteristics of animals. To argue soundly on the subject would require a comprehensive review of the internal as well as external structure, compared to the effect which extraneous circumstances, food, climate, habits, have on the bones and muscles, both as to their shape and composition; and how the ratio of length, thickness, and mechanical construction alter simultaneously, or by degrees, in all these, or some of them. I mean, in how far the bony structure becomes changed by a cross, to a comparatively greater extent than the muscles and internal viscera; and inversely. All these are questions which leave a wide and promising field open for science to investigate, in order to enlighten the practical agriculturist.

The price of butter twenty-five years ago was about 4½d. per lb. A given quantity of milk will produce twice the weight of cheese that it will of butter. It is clear (for the labour is almost the same) that for half that sum a pound of cheese could have been manufactured at the Cape, and when European cheese could not cost less than six or seven times that amount, it is not to be wondered at that people thought Cape cheese almost as good as European, and that some even fancied that they liked it better; but when butter rose to 12d. and 18d., and tolerable cheese could be imported from Holland and America at a shilling, the manufacture of the home-made article ceased, I dare say for ever,—at least if free trade lasts.

Thousands and thousands of morgen, which, in the country around Algoa Bay, Bruintjes Hoogte, Graaff-Reinet, and Sneeuwberg, used to send cargoes of butter to Cape Town and the Mauritius, are now depastured by merino sheep, the wool of which is consumed by the manufacturing countries, which, directly or indirectly, send us cheap cheese, and even salted butter, in return.

However, as the wants of the colony must be provided for, as we must have fresh butter, milk, draught oxen, and beef-steaks, it is of great importance that a right system of breeding should be followed, to supply our home demand; and I would again insist upon the evident necessity of breeding peculiar varieties suited to the peculiar pastures of each locality, and to the extent of demand for each description—whether for draught, the butcher, or the

dairy. All attempts, in other countries, to combine the perfections of each breed have invariably proved futile.

The Namaqua and other native cows, crossed with the Dutch or other larger breeds of European bulls, produce an animal best adapted to the variable seasons and pastures of this colony. But there we come to a stand still, and, in trying to breed back, either to the one variety or the other, we get an heterogeneous mixture of breeds, and meet with disappointment at every step. What European breeders, those who breed for the turf or for coach horses,—what Bakewell, Culley, and others have done, has never been attempted here—that is, by selecting the animals showing those points which the breeder is aiming at from among those of the cross-breeds, and constantly and for years checking any aberration from the standard or type proposed, to establish a permanent character,—to produce what the Germans call "constanz der rasse," for which very appropriate term I can find no English synonyme.

A glance at the *Illustrated News* during the time of a cattle-show will show that distinct varieties are propagated, and the purity of each kept up, and that on so small an area as Great Britain, many perfectly distinct breeds are cultivated. Indeed, I doubt whether the supporters of our agricultural societies and shows are generally aware that the Highland Society and the agricultural societies of England award prizes,—not for the best milch cow or fattest ox ,but for the best milker of this, that, or the other breed; and the points and characteristics of each breed are first scrutinized before the weight of carease or quantity of milk is taken into consideration. Now it is plain that we have no subdivision like this, no analogous system of breeding here. I firmly believe, still, that the Ayrshire breed, in its purity, would answer remarkably well as milkers in this colony; and that some of the larger Highland cattle (as the Argyleshire) would do in our mountainous districts.

The Ayrshire does not give so much milk as the Dutch and English short-horns; but these last require very high feeding; and the milk of the Ayrshire is richer, in proportion, to the food consumed.

In short, as a general rule,—the smaller the quantity, the richer the quality. Our Cape cows give a richer milk than the fatherlanders, so much so, that a regular milk-drinker can, by his palate, tell the milk of the one from that of the other. I think that, owing to the rapid growth of our grasses after rain, the milk in the regular season contains less oleaginous or butraceous substance than in Europe; and that this, as well as the use of Cape salt, may

account for the dryness and poorness of Cape cheese generally.

I do not suppose the fact has been proved by experiment, and yet it could be easily done, by ascertaining the specific gravity of milk from different breeds, at different seasons, or when fed on dry provender; and comparing it to the known comparative weights of milk in Europe. There are such things as "lactometers," used to ascertain what quantities of chalk, calves' brains, and water from the pump are used by the London milkmen for the fabrication of artificial milk.

Whatever breed may prove the most profitable in Clanwilliam, Colesberg, or Wynberg, there are some points in a good milch cow which are desirable in every breed. Thus the udder should be formed like a four-legged stool; the shape of the animal, too, should be more or less wedge-like; then a fine head and neck, and straight back; as well as breadth between the hips are extolled; but the Dutch, Swiss, Channel Island, and Ayrshire cows differ considerably from each other in these respects,—whilst depth of hind-quarters and the peculiarly-shaped udder is a rule almost without exception.

I have, whenever I had a chance, endeavoured to prove that the pure Ayrshires, without admixture with any other breed, was worth trying; but I suppose I must give up the idea as hopeless. Yet, selection of a moderate-sized breed, not too heavy in carcase, so as to enable them to travel in quest of food,—not so small in the bone as to create a tendency for the food to turn into flesh or adipose matter instead of milk,—I certainly recommend to all cattle-breeders amongst us. Devons, Ayrshires, Galloways, Alderneys, Durhams, and other breeds besides the Dutch, have from time to time been imported, but they have been crossed and bred from, without any system whatever.

Look at the Natal or Zoolah ox, a most hardy animal, capital for draft,—I suppose, even in some situations, preferable to the Highland cattle I have spoken of; and then look at a large Dutch cow, and ask yourselves whether, even if the first cross between such stock should be an improvement, there would be the slightest hope of reproducing a crop of calves of this description, something like each other in size, shape, and other qualities, unless the tedious, but absolutely necessary process of constant selection be adopted.

Believing that the manufacture of cheese will, in all probability, not soon be resumed, I need not explain why I would have tried, by means of large open coolers, to retain

the previous day's cream fresh, in order to mix with the next day's milk—as they make double Gloucester; and why I should have used Liverpool instead of Cape salt, as apparently less desiccating.

Where churning is still carried on, on a large scale, even for a few months in the year, I would strongly recommend the trial of a churn I have seen in Holland. The object was to keep the milk, where the churn is very large, constantly agitated, at as little expense of power as possible.

I recollect recommending it to a neighbour of mine who had upwards of 100 cows at the pail, and who had to churn 25 buckets of milk every day. He asked me the object, and when I told him, of course to save labour, his answer was—"Oh! when my people have done milking, they have nothing to do all day, and they may just as well churn as go to sleep."

I have little to add to what I wished to say about cattle, except the hope that I may have induced some to reflect more on the absurdity of expecting anything like a favourable result from the manner of breeding at present pursued.

That our agricultural societies have fallen into error is not to be wondered at, for even in England they are beginning to find out that, by giving prizes for the fattest oxen, though of particular breeds, they have thoughtlessly encouraged a race of animals not the most economical to stock a country with. The same may be the case with milkers. You may encourage and produce a breed of cows that will give a large quantity of milk, but unless the quantity of food required be proportionate—unless they breed as well—and unless the rearing of heifers pays so well as to keep the bull calves altogether out of the calculation—and unless, during the first three or four years of their lives, or when they are not in milk, these cows can be maintained on comparatively poor keep, it is bad farming to breed such cattle, let them give ever so large a quantity of milk; and it is bad policy in agricultural societies to encourage the rearing of them.

1,200 guineas was paid last year, we are told in the newspapers, for a bull at the Paris agricultural exhibition, by a speculator from New South Wales. I do not know whether he was warranted free from lung-sickness—and time will show whether the pasture of Australia is suited to such artificially-bred animals.

I now turn to a very dangerous subject, as far as this audience is concerned.

Sheep and wool have always been my hobby—probably

because I fancied I knew more about them than about other subjects; and I say this in spite of Talleyrand's apophthegm "that men like to talk most about what they understand least." I must, therefore, take care not to become too prosy. Never having preached a sermon or delivered a lecture in my life, I am not able to judge with anything like accuraey when the attention of the hearers is likely to flag. I know very well that on board of ship the captain and men, who are fully engaged, have not sueh a vivid impression of danger during a storm as the less actively employed passengers; and I am afraid, in the same way, those who have come here to listen, feel the danger of their going to sleep much more than he who came to speak.

But let the importance of the subject make up for my want of tact. I merely wish to allude and draw attention to such prominent points as "may prove food for thought." I must beg of you then to keep awake till we eome to Major Parlby and the opium poppy, whieh I shall reserve for the last part of my lecture. And now let us return to our subject—"Revenons a nos moutons." We read of woolled sheep having been kept by the Government on Robben Island in very early times. We read of them in a politieal pamphlet, called "Zekere Korte Deductie;" but all that is of little practical utility.

I prefer to begin with an extract from Ryneveld's pamphlet, published, it must be borne in mind, in 1804:—

"Colonel Gordon (he was in the Dutch service) received a few thoroughbred Spanish rams from Europe, about 14 or 15 years ago. Three of these he parted with to the brothers van Renen, who made a commencement with them among 300 Cape ewes. In 1795 the partnership between these brothers was dissolved; and Johannes Gysbertus van Renen received, for his one-third share, 150 half-bred Spanish ewes, and two rams. From the answers to the questions subjoined, given by Mr. J. G. van Renen, it will be seen what progress has hitherto been made.

"It will be seen that he possesses at present 2,700 Spanish sheep, or sheep earrying an excellent fleece; that in nine years he has slaughtered 600 of this description, so that in nine years those 150 half-bred Spanish sheep have given him 3,300 head.

"It will likewise be observed that he now has, annually, 3 lbs. from every ram or wether, and 2 lbs. from every ewe; that he has within the last three years begun to bring his wool to town, where he has sold it at 4 skillings; that his wool improves 25 per cent. in quality every year; and that

during the present year he had sold 4,000 lbs. to an intelligent merchant, Mr. McDonald.

"The other van Renen's have made similar progress; and Landdrost Naude clipped as much as 3 lbs. on an average from his flock of a thousand sheep."

Mr. Ryneveld calculated that about a million and a half was the probable number of sheep in the principal sheep districts; and adds, if their conversion into wool-bearing animals were left to the caprice of the colonists, it might take 50 years. It is singular that this prophecy was made 52 years ago. And he further gravely says:—"The hand of power will alone be able to produce this favourable change, and the inhabitants will, generally speaking, have to be compelled to receive this boon into their laps, *nolens volens* (tegen wil en dank)."

Mr. Ryneveld's presumption in placing himself at the head of an agricultural society is very much censured by Mr. Von Buchenröder, who was sent out with grand schemes of improvement by the Ct. van Hogendorp. I think Buchenröder too much of a theorist, and he certainly did not know enough of the colony, when he talked of feeding sheep on lucerne, even in those days. But there are many things well worth reading in his work; and I allude to it here because, from a document, signed by three more of the brothers van Renen, it appears that there must have been a sort of opposition agricultural society at the time. The Buchenröder party were:—Sebastiaan Valentyn van Renen, Jacob van Renen, Leopold Heuser, Jan Andries Horak, Jan Frederik van Renen.

I have given this rather copious extract, to show not only how much wiser we are, than our forefathers, in one respect, but also, that enterprising individuals were not wanting at that period ready to turn their attention and energies to a promising branch of industry.

It is true that, in the interior districts, where the inhabitants were more ignorant and uninformed, more than the usual amount of prejudice laid to the charge of farmers in all countries, was shown; yet the better informed agriculturists, and those near the capital, were not deficient in zeal. And here I may just remark, I hope in no unkindly spirit, that how much soever our colony is indebted to the settlers of 1819 and other emigrants, for that infusion of activity and energy which they brought with them from highly civilised England—the older colonists have not received their fair share of praise due to men who were the first to introduce improvements in live-stock and agriculture.

As regards merino sheep, it must not be lost sight of, that the capital of the better informed and wealthier colonists had already been invested in the culture of the vine, which had been much encouraged by the Government, and that the new settlers in the east, as well as the first wool-growers in New South Wales, despairing of raising any other article of export, naturally tried the only production (that is wool) which there was the slightest chance of growing with profit.

I have been told by the late Mr. Breda, that at his recommendation, the remainder of the flock belonging to the widow of Col. Gordon was purchased either by Captain McArthur himself or by some person for him.

In Australia, many gentlemen, officers and Government servants, who had land for nothing, servants maintained at Government expense, and their pay to live on, could with ease and safety try experiments in a new country, the capabilities of whose pasture and climate were still unknown. So that it was not much to be wondered at if they, like the first Albany settlers, when told of the splendid vineyards in the Western Province, chose as their motto—"Hic segetes, illic veniunt felicius uvæ."

From these flocks of the Van Renens, Faures, and others, sprung all the woolled sheep in the colony now. Small lots of ewes and rams—principally rams—have ever since been imported, to cross and improve with. Lord C. Somerset brought in some from the flock known as that of George the Third's: they were the same from which Lord Western produced the breed for a long time so admired in this colony, and were of a variety called Negretti or Infantados, after the original proprietor, the Prince of Infantados. Now, though I am of opinion that by crosses or artificial feeding and management, with the view of satisfying the butcher, the Westerns became ill-suited for either this colony or New South Wales, yet I should not be surprised if that of the Negretti could still be obtained pure from Spain, that breed might prove the very best for the present demand, and most suited to the pasture of our colony. It is a broad, thick-set, short-legged sheep, with more bone, and somewhat coarser, but closer and heavier, fleece than the Saxon electoral. It is a more hardy animal, and, in fact, the Negretti combines the very qualities which it is now sought (as I think in vain) to produce by crosses with different breeds of the most opposite character.

I have said that Lord Western's object was the butcher, more than anything else. To show that I am correct, I shall read a few sentences from a pamphlet published by

his lordship in 1843, and kindly sent me by my friend, Mr. Busk, formerly of this town:—

"The great art (in managing my flock) consists in apportioning justly the number of sheep to the means of providing for them all the year through, as well in winter as summer; and with this view every judicious farmer will be careful not to overstock his land. To do this, however, is a frequent and fatal error. Then everything goes wrong, and the wool shows *every period of insufficient food*, by becoming brittle in that stage of its growth, will break upon slight pulling, and is unfit for combing purposes. For my summer food, I have grass, and occasionally some clover, but principally grass—by no means of good sheep quality; in the winter, cabbage, mangel-wurzel, turnips, chiefly Swedish," &c.

I have here, also, a work by an old acquaintance, who has sent me out many pure sheep,—Mr. G. W. Clauss, of Perna, in Saxony, a broker and agent for purchasing rams, —of whose death, I am sorry to say, I heard a few months ago. He inspected Lord Western's flock, and says:—

"Lord Western had one of these three-year-olds killed when I was there. The fleece weighed (unwashed) 30 lbs., meat, 116 lbs., tallow, 24 lbs.,—the whole sheep (without offal), 170 lbs."

Upon this follows an extract from Petre:—

"The moist climate of England, so favourable to the growth of grass, gives to the pastures of that country a most nourishing quality for the animals kept on them—besides which it has been enriched by manuring and artificial grasses—so that in regard to the production of weight in wool and flesh, the English pastures are second to none. Consequently, as is the case with cattle, the sheep must, by means of this nutritious feeding, gradually increase in size —a quality which, by careful selection of makes and females, and by the most nourishing food, the breeders exert themselves to make permanent—by which they create a really artificial production."

Here, again, I have a letter dated May, 1854, from a gentleman just returned from Australia to a north country baronet, and, although allowed to do so, I prefer not to mention names:—

"But the writer states that the Australian growers, after several attempts, have given up all idea of combining carcase and fineness of wool, and recommends Mecklenburg Schwerin or the French merino flocks to those colonial wool-growers who feel the necessity of increasing the weight of their fleeces."

So that, without tiring the meeting, and particularly those who have had the courage to read all I have had the presumption from time to time to publish on the subject, I would merely observe that year after year have my predictions been verified; and when, at the risk of being accused of pedantry, I went back as far as Columella's time, to show that short commons and short wool went together, and that plenty of food and long staple agreed, I was founding my assertion on sound historical data, and on the experience of ages. Southey's book, which I reviewed some time ago at some length, repeats what is said in the letter just read, and confirms what I have expressed years ago. Mr. Southey is the eminent wool-broker, and has also kindly sent me a copy of his book, which, with any others, I shall be happy to lend to any gentleman who applies after to-morrow. This is what Southey says:—

"Venturing to urge various reasons to show the impoliey of introducing, under his lordship's sanction, a mongrel race of sheep into our wool-growing colonies, for which, at the time, there appeared an evident disposition; alleging that such a plan, if persisted in, would necessarily lower the quality of the fleeces of the fine-woolled sheep previously introduced. And I afterwards ascertained that this actually was the case.

"Lord Western and Mrs. General Dorien possessed a breed of pure merino sheep, and kept them highly fed; consequently, their fleeces became long in the fibre and heavy in weight.

"But as wool is not required now to be of a longer staple than 5 or $5\frac{1}{2}$ inches for hand-combing and from 2 to $2\frac{1}{2}$ for machine-combing, I am disposed to think that it would be more advantageous for those persons in England who may have to supply merino sheep for our colonies, to procure the best rams from the most celebrated flocks in Saxony.

"I cannot help thinking that it would answer the purpose of some spirited individual of known reputation and rank in the colonies, to establish a pure breeding flock of the finest Saxon sheep, and thus supply stock that could be relied upon to his neighbours."

Now, I repeat that we may go as far wrong in one direction as in another; but who ever, on our ordinary runs, and on a farm properly stocked, tries to get more than two lbs. of wool on an average from ewes, or three lbs. from a wether, is sure to be disappointed.

Gentlemen, I have had from time to time an unpleasant duty to perform. I have had to decry the introduction, or rather the too hasty adoption, of

different breeds, where intimate friends of mine were interested in the sale of the progeny. I attacked the Leicesters, and was laughed at. Where are the Leicesters now? I found fault with the Westerns. Who breeds them now? I have not yet condemned the French merinoes imported; but I have asked for information, and I cannot obtain it. We must be told where, how, and by whom any new breed of sheep has been produced, or what the origin of the variety is,—for by a chance cross with almost any breed, some extraordinary individual specimens may be bred. These may be sent here, and fetch high prices; but it is possible the breeder may be disappointed after a few years. The origin of the breeds should be explained to us, that we may know how it happens that out of the very same "Bergerie Royale," animals are brought of a very opposite form, size, and character.

The great impediment in the way of improvement in the production of our wools, is the mistaken notion of what is profitable policy on the part of the merchants here, or their agents in England. If they will honestly find out the real value of different descriptions of wool,—I mean the real comparative value, even with very great allowance for temporary variations in the demand for peculiar qualities, —if the merchants will find that out, which they can if they choose—and if they will honestly tell the farmer what they can afford to give him for his produce, they would find it the best policy in the long-run.

I am afraid until wool-buying becomes a separate trade, and until the barter system is given up, no great improvement can be expected; some wools in this colony, are, I am told, shorn in the dirty kraal, and the bag being fixed on four poles in the kraal, the fleece, after being shorn, is tumbled in and packed. Some wool is still very like dog's hair, whilst in other places, the clip is beautifully washed and got up, and the wool extremely fine; but look at the difference in price in the London market, between coarse Cape wool, of which only duffels and blankets can be manufactured, and the very finest, fit for imitation cashmere shawls. I have a piece of cloth in my hand, which I do not show for mere vanity, though my name, among others, is embroidered on it. To Mr. Mich. Breda, of Zoetendalvley, who got the wool up, and to his late father (I trust not quite forgotten yet), who brought our so-called stock flock to such perfection, the honour is due.

But look at this cloth: its weight is half a lb., its length quarter of a yard,—consequently, one yard would contain two lbs. of wool. I have before me Bischoff's very elaborate

and complete work on "The Woollen Manufactures." At page 193 we are told that it will take two lbs. of wool, at three shillings per lb., to make a yard of cloth. Another, Mr. Berg Gott (see page 194, of Bischoff), says two and a quarter lbs., and the cost of manufacture would be 6s. 9d.; consequently, the wool of this piece of cloth, say costing at 1s. 6d. per lb., 3s. 6d. per yard, and the cost of fabricating it being 6s. 9d., the cloth ought to cost 10s. 3d. I am told the wholesale price of this cloth is at least 15s. in England; consequently, the manufacturer would be no loser if he paid 4s. per lb. for such wool as this cloth is made of. In the same page of the work already quoted, Mr. G. Goodman says:—"When English is charged out to our manufacturers at 16d. per lb., and foreign at 18d. per lb., they deliver goods back again, in browns and olives, at 6s. 10d. per yard, and in blue 7s. 10d. per yard." Now 18d. has been, until very lately, about the price of our best Cape wool in the London market. Did they use it to make six and tenpenny or seven and tenpenny cloth of, or do they doctor German assortments with them, as they doctor Sherries and Port wines with Cape white wine and Pontac? That seems the question.

I do not complain of the average price obtained for Cape wools, but by the present system, the better descriptions suffer through the enhancement of the price of the inferior qualities, and the grower may yet have to fly to the markets of France to get justice done to him. There is already a large quantity of wool raised in this colony, which, if accommodated, as sorters call it, would produce an assortment superfine enough to be manufactured into French cashmeres. Of course the demand for that article of manufacture would be but small; but for whatever purpose, whether for broad cloth or for admixture with other substances, vegetable or animal, such as silk, linen, cotton, alpaca, mohair, &c., &c.,—the very finest merino, being more elastic, having more wear in it, being closer in texture, and therefore warmer and stronger,—I say, the very finest merinos must always command a comparatively higher price, provided its value in the market be not either accidentally or purposely mystified, in order to serve other interests.

For the last twenty-two years I have so constantly obtruded my opinions and remarks on wool and sheep upon the public, that I am afraid a repetition or digest of the whole would neither interest the meeting nor be capable of being read in one evening; therefore, as I said before, I have only brought forward prominent points.

You will have perceived, by this time, that I lean very much to the opinion that our colony is not adapted for

large horses, large cattle, or large sheep; and I think we may lay it down as a rule with regard to live-stock of every description, reared partly or wholly on the grasses and shrubs which grow naturally. I do not exclude the hog nor the barn-door fowl. I prefer the half-bred Chinese pigs (except for those farms where they breed for a distant market, and the porkers have to travel far)—nor would I go to Cochin China for hens.

At all events, I must greatly deceive myself if I have come to this conclusion merely from the love of generalising, which is so apt to get fast hold of us when we reason on natural phenomena of any kind.

I hasten to conclude this part of our subject, and shall merely say, of goats, that the long-eared goat from India was tried; the cross found to be excellent milkers, but the breed, from want of fresh blood and want of selection, has become extinct, which, at one time, I very much feared would be the case with the Angora—the importation, lately, of a small flock, and its distribution in different parts of the colony, will prevent that danger. The very recent discussion of the history of the introduction of these goats, and the reasons for supposing that the experiment may answer here, preclude me from saying much more. I would merely remark that, as far as I am aware, Lt. Conolly's paper, read before the Asiatic Society years ago, is the only published account to be found of the "long-haired Angora." The Duchess de Berri had some in her possession. Baron Ternaux tried experiments with them, so that, if any gentleman in this room has any connection with France, or is able to obtain any information on this subject, he could do the colony some service. We want information, principally as to the pasture, causes of the difference in quality of the mohair, the quantity produced, and management of the animal, the mode and time of clipping, value of the animals on the spot, what the difficulties really are which prevent their being brought to Smyrna or any harbour on the Black Sea, particularly now that England and Turkey are in such close amity, and what the difficulty is of bringing these goats viâ Constantinople and London, to the Cape, more than to bring a ram from Saxony or Silesia. But what we want is—correct and perfectly reliable and disinterested information.

I have here several samples of the long-haired Angora wool, as well as specimens of different fabrics manufactured from it, either mixed or pure. The quality of the fibre, as well as the market value of the raw material, will be seen to vary very much indeed. Now, as these goats are said to

be reared only in a circumscribed locality, it becomes doubly important to know the cause of these differences in the quality of their coat.

Here are nine samples of Angora, ranging in value from 1s. to 3s. 7d. per lb. Here is a specimen which I have been fortunate to obtain, of Colonel Henderson's importation. I think there is very little difference, if any, between it and the samples I now show of Mr. Mosenthal's importation. I should say that, in quality, the latter is equal to No. 4 or 5 of the nine samples shown—valued by Mr. Titus Salt at 2s. 2d. to 2s. 7d. per lb.

And now I must very cursorily mention, merely mention, the names of half-a-dozen of the principal and most fatal *diseases* of live-stock, from which the Cape farmer suffers very extensive periodical losses. The horse-sickness and glanders in horses, the former evidently pulmonary and owing to atmospheric influences, but not always shewing the same symptoms. The committee of the C. G. H. Agricultural Society sums up as follows: (you will find it in p. 98, of Mr. Bayley's valuable pamphlet):—

"1. The horse-sickness of '54-'55, is an epidemic disease, and not contagious.

"2. It is produced solely by exposure to the night air in a season of general *malaria*, arising from causes not yet clearly known.

"3. That horses stabled before sunset, and not turned out to graze before the dew is off the grass, are safe from its attacks, though exceptional cases may occur.

"4. That horses kraaled where there is an accumulation of manure, are more likely to survive.

"5 That elevated table lands, &c., may be resorted to with advantage.

"6. That early adoption of these measures is advisable."

Now I have a right to claim for myself the honour of having been the first, as far back as 1839, to have stated every thing I have just read, except as to the migration to the higher lands, which was generally known and admitted more than a hundred years ago; but even Dr. Knox, who dissected horses near "Glen Avon," in the neighbourhood of a mountain of refuge, never hinted at the true cause of the effect produced by change of place. If he had believed it owing to the more equable temperature, he would surely not have *lurked* the fact, and Mr. Hart would not have ascribed the disease to *cobwebs*. Again, when the committee, in the 3rd section, say that horses not turned out before the dew is off the ground are safe, they may lead the farmer to the erroneous conclusion that the dew is a cause of the

disease, whilst in my opinion, the dew is one of the effects of the sudden change of temperature under peculiar states of the atmosphere and the moisture it holds suspended. I do not see it proved in evidence, that when the heat of the sun has taken the chill off the morning air, the presence of dew has any deleterious effect; the opposite opinion, stated as a known fact, has led otherwise sound reasoners to propound theories, which suppose noxious animalculæ, and so on, to have been generated in the dewdrops.

The *glanders* has disappeared of late—a proper acquaintance with the distinctive symptoms between it and chronic catarrh, would have saved the life of many a valuable horse. It is worthy of remark that Blaine, Youatt, and other writers on veterinary science, are firmly convinced that a long standing and neglected catarrh may degenerate into glanders. Now, if that were true, as chronic catarrhs must have occurred from time immemorial, in this colony or elsewhere, glanders would have likewise been a disease of the country from the first; but as it never made its appearance amongst our horses till introduced by a mare Sir Lowry Cole brought from the Mauritius, it appears pretty evident that the veterinary writers I have named, were wrong in their theory as to the catarrh degenerating into glanders.

Spons-sickness and other epidemics sometimes make their appearance. I think it would be money well bestowed, were the Legislature to vote a fixed salary as a bonus to a good veterinary surgeon, who should reside in Cape Town, and be ready, when ordered, to proceed to the country, to make post-mortem examinations, and to try experiments whenever epidemics among cattle, horses, or sheep, may break out; nor would it be a very expensive thing to establish, on a small scale, a veterinary hospital in Cape Town, where a course of experiments might be instituted when necessary, whilst the practitioner should be bound to give occasional popular lectures. I am convinced that, to a farmer, who has daily opportunities of seeing sheep, oxen, and even horses, opened, a couple of lectures on the functions of the viscera of the chest and abdomen, with a clear demonstration of the difference between the diseased and healthy state of the lungs, &c., cannot be otherwise than of real practical utility. The money paid to such a Government veterinary surgeon would not be money wasted.

The lung sickness, lame-sickness, *teering* or consumption, and other diseases of cattle, as well as those of sheep,—the lately increasing one of *tapeworm*, for instance,—all of which continue to puzzle us, might be partly explained; and if

remedies cannot be prescribed, at least their causes ascertained; and *prevention* (which is better than cure), attempted with some prospect of success.

To this day, no one knows what wind it is that brings *horse-sickness*. There is some doubt whether *lung-sickness* is contagious. The experiments by inoculation appear unsatisfactory—some have even recommended purging medicines. *Lame-sickness*, no one knows the cause or seat of—and yet it is one of the oldest and most destructive cattle diseases we have. Even with regard to *scab* in sheep, it has not been clearly proved which remedy is the best,—if economy of the substances used, of the labour bestowed, as well as the loss of wool and loss of condition, be all taken into consideration.

Now, one discovery in any of these may save the colony thousands of pounds annually; and I repeat that a veterinary surgeon would be well worth paying for by the colony at large. But then, to make the Cape the right place for such a man, he must be the right sort of man for the place.

I ought to have mentioned, when speaking of lung-sickness in cattle, that in a report by the professors of the Utrecht Veterinary College, made to the Minister of the Interior in Holland, in September, 1852, and signed P. H. J. Wellenbergh, the unsatisfactory notice of some experiments made by order of the Government is admitted, and further experiments promised. Any gentleman having friends studying at Utrecht, particularly if they are medical students, would give those young gentlemen a good opportunity of doing their native colony service, by asking them to send us the latest accounts of experiments in Holland.

LECTURE II.

I AM afraid that, from want of practice, I miscalculated the time it would require for the delivery of my lecture the week before last, and I felt afterwards that it must have been a severe tax on the patience of my hearers.

I have done what I could to abbreviate what I propose to offer this evening; but still, unless I had left out references and observations absolutely necessary to make my meaning clear, and to prove my statements correct, I could not have curtailed my observations to a greater extent. On the evening I last addressed the audience here, I took up the first division of my subject, viz., the rearing of live-stock.

I have set apart for the present lecture the culture of various vegetable substances, to which I shall endeavour to add some other matters interesting to the agriculturist.

The immense increased exportation of wool will, no doubt, bring capital into our colony, and that capital will, at least in most parts of the Western Province, soon be advantageously used, in order to increase the more immediate products of the soil—that is to say, if I am not greatly mistaken in supposing that our part of the colony is pretty nearly sufficiently stocked.

It may give some idea of the possibility of increasing the production of the soil in many, perhaps more or less, isolated spots, when I tell the meeting that in the division of Swellendam, the village of Montagu, which some ten years ago was sold as a farm for £1,200, produced this last season 450 leaguers of wine, 30 or 40 leaguers of brandy, 200 muids of wheat, besides other grain, potatoes, beans, fruit, &c. I think I am not far wrong in valuing the whole at upwards of £3,000 on the spot. Now, Montagu is by no means the only locality where such results are to be looked for hereafter.

But let me proceed with the promised second part of my subject,—

The culture of the soil. Our Cape plough is not unlike the old Roman, or the plough used to this day in the south of France, very clumsy and heavy, and of course it has had its fair share of obloquy; and yet, notwithstanding the introduction, years ago, of English ploughs on Government farms in Somerset, George, and other districts nearer Cape Town—notwithstanding the late Mr. Duckett's employment of the double-furrow more than half a century back (I

believe the merit of the invention of the double-furrow was contested between Mr. D.'s father and Lord Somerville), —still the old Cape plough is very much used in many parts of the colony. I have seen English farmers use them after they had tried Scotch, Ransome's, and ever so many better descriptions. I have seen the English servant of more than one gentleman farmer buy his master's farm, and betake himself to the old Cape plough, and I have seen them make farming pay much better than their former employers did. But mind, I do not ascribe their success to their return to the old Cape plough. Oh no; I believe its doom is sealed—I believe it is gradually dying off: it only flourished as long as it was persecuted. But I mention these things to show that the exact descriptions which are suited to different localities are not yet fully ascertained, and the price of draught cattle, the comparative advantage of keeping mules or horses, the price of labour, the neighbourhood of smiths and mechanics, the stony or sandy nature of the soil, all must enter into the calculation.

Hence, new-comers should be more cautious, and ought not so hastily and so absolutely to condemn implements and modes of culture which, when compared to what further advanced countries can show, appear of the most primitive description.

The *double-furrowed Howard* will supersede every other plough, at least in those parts of the colony where oxen are bred, where a lot of young oxen must be broken in every year, and where labour is scarce and the ground not very stony. The Eagle American is a very strong plough, and much liked in our part of the world.

I find people are getting fond of a Swedish plough in this neighbourhood; and although there may be a good deal of fancy in these matters, it must be confessed that our farmers are abandoning prejudices very fast, and in a few years we shall get very near the truth. One thing must be borne in mind, that in Europe, if the ground be very carefully and completely prepared by ploughing, the crop is wonderfully different from that on lands badly ploughed. In this colony, it will be less perceptible. A good shower of rain is a sad leveller of the high-bred Ransome and the vulgar Cape clodhopper.

Now, as to *grain*, almost all newly-imported descriptions of wheat, the Egyptian or seven-eared, the Banks, Aragua, Victoria, in fact every sort that has of late been introduced, showed no sign of *rust* for the first few years; in the end, the climate or contagion infects them all. The Bengal withstood the *rust* longer than any other, but it has degenerated, and become

more liable to that disease. It is difficult to obtain the pure Bengal in the colony, or (as it would seem) anywhere out of it. I have been informed that the first sample brought here was a cargo sent for by the Government in a time of great scarcity, which was sold or distributed among the corn farmers, and, coming from Bengal, was called Bengal wheat; but what part of India it was grown in, or whether the produce of the East at all, seems doubtful.

I have often wondered why importers of seed wheat have not sent to Italy, Spain, or any other part of the south of Europe, or South America, in preference to other places. The greater similarity of climate, and the probability that the varieties grown in those countries would come to maturity more speedily, would lead us to expect good results.

It is supposed, but I confess it has not been sufficiently proved, that the more flinty particles or silicious matter the outer film of the straw contains, the less liable such variety of wheat will be to rust, which botanists believe to *cryptogamic* plant or fungus,—the growth of which is accelerated when the straw becomes more easily decomposed through the means of small showers of rain, followed by very warm weather.

I shall not venture to go at any length into the diseases of plants. They baffle both practical and scientific men in Europe more than anything connected with agriculture; for instance, the potato and the vine epidemics; but I do not despair of the future.

I believe if I had had time to make enquiry, so as to obtain perfectly reliable information, the returns for one of wheat on some of the karroo farms where irrigation can be practised, and of oats on the Olifant's River, in favourable years, would be looked upon as fabulous by Europeans, who are rather incredulous when they hear of a hundred-fold. The true criterion is not the number of muids reaped from one, but the quantity per acre, and in that respect we have no accounts to guide us. On ordinary soils, I dare say, we may reckon that one schepel of wheat is sown per acre, or say a bushel; and the average return is, I dare say, not above twelve for one on land not irrigated,—taking good and bad years, rust, and the worst districts in, to make an average. This would give about twelve bushels per acre,—whilst in England the return is from 30 to 40 bushels; but if we sow irrigation-land as thin again, say, half a bushel per acre, and get upwards of 100 for one, as is frequently the case, or 50 bushels per acre, it is worth calculating what the value of an acre of land that can be irrigated is, compared to other corn land; and it must be borne in mind that

the best land in England and Scotland cannot be rented under £3 or £4 per acre.

In Sears's statistical account of the United States, he says at page 14, in Maine, between the Kennebee and Penobscot, the average is 40 bushels of corn, and from 20 to 40 of wheat per acre; and at page 515, in Michigan, the year 1850 (a very good year) averages 20 bushels per acre over the State. One wheat field of 100 acres averaged 45 bushels—and one measured acre over 60 bushels.

I have more than once given my opinion as to the value of our so-called "Pampoen Lists," which is the Cape phrase for "Agricultural Statistics," but I find there is considerable difficulty with the subject in England also. In the *Economist*, of April, 1856, the editor gives an extract from a speech by Mr. Nisbet, a member for Lincolnshire, who expressed his doubts as to the Scotch returns as follows :—"In the county of Haddington, a rich county, with which he was well acquainted, in the five best parishes there, the enumerator, an honest and a reputable man, returned the average of those parishes in 1854,—without exception, the greatest harvest known—as amounting to 35 bushels per acre. Now, there was not an acre of land in that district that did not pay at least a rent of 40s. per acre ; some paid 70s., and some £4. The rents were cheerfully paid; yet how, he would ask, if the above returns were correct, in a country growing potatoes and wheat, how was it possible for occupiers to meet their engagements and how pay rent ? He believed when the grain came to be threshed out, the average would be nearer 50 than 35 bushels.

"The average of this country might easily be taken at 40 or 50 per cent. under the mark, and the consequence would be an overwhelming influx of foreign grain, at a time when it was discovered that it was not wanted."

The editor in commenting on this speech says :—"Now, this is a gross or affected ignorance. Every farmer knows, that even in the well-farmed county of Haddington, 35 bushels of wheat to the imperial acre throughout the county, is a very high rate of produce and that the premises and the conclusion of Mr. Nisbet are perfectly puerile ; and there can be little doubt nobody was more fully aware of the fact than himself, but the fears of the farmers had to be humoured. The meeting ultimately resolved—That any bill for taking agricultural statistics be rejected altogether."

I have read this extract, not for its political interest as

regards the disputes between Mr. Nisbet and the free-traders or the Board of Trade,—with that we have nothing to do here; but to give an instance of the difficulty of obtaining correct data when endeavouring to compare the produce and price of land in Great Britain with the produce and value of land here; as also to show that, if the enlightened farmers of England could vote such a resolution as that just mentioned, from a dread of making their landlords acquainted with their profits, it is not to be wondered at that our less enlightened agriculturists should, from a lurking fear of being taxed with an "opgaaf," refuse to be over-communicative as to their farming operations also.

Before proceeding to the mention of other cereals, I may perhaps be permitted to read extracts from two letters, in answer to questions put by me to an intelligent land-surveyor, who took the trouble to measure sown land in the George and Swellendam districts. It is so far satisfactory to me, as actual measurement seems to agree pretty nearly with a calculation I had made in a very vague manner:

"His return of wheat for 1855, is as much as the same quality of land would yield in England, the soil in question being a cold sand; indeed, his yield for 1855 is fully equal to what I expected. Another great drawback to yield in this country, is the land not being enclosed, by which the growing crops are exposed to many a nibble from cattle, and each bite, must of necessity reduce the yield. I consider the yield in Oliphant's River, to exceed that of Longkloof by at least a third."

"In Olifant's River, I found it vary from 20 to 40 schepels per acre, and one small piece of Kriel's, at Buffelsjagt, gave 40 schepels per acre; this was sandy land, and its appearance at harvest did not promise so much, but it was rather thick on the ground, straw bright and healthy, and the corn well developed, very equal in plant throughout. In Olifant's River, owing to slight inequalities of ground, I have never seen an equal looking crop, the hollows getting more water, and indirectly more manure; the yield on the best patches must be very great. You may depend on these quantities as being very near the mark, having paid much attention to the subject."

Last year, in the memorial to His Excellency from Weenen, Natal, the memorialists state the average yield there to be from 24 to 27 bushels.

And again, the same correspondent reports the experience of another gentleman, Mr. Currey, of Langekloof:—

"From my own experience here I should say that we rarely get more than the minimum English return per

acre. A Dutch farmer says he sows one muid to a morgen of ground; but on measurement I find that a muid of seed is sown on one and a half morgen of ground, or one bushel to the acre. Twenty-fold is considered here a good return, which, supposing my measurement correct, would be rather less than seven muids per acre. On an average, I doubt whether wheat in this colony returns more than 4 muids per acre. I have heard that a farmer at Longkloof once raised a crop of Vittoria red wheat of twenty-six muids per acre, but I have no certain knowledge of any such return. My own wheat (1855) gave a return of seven muids per acre, the weight of the muid being 194 lbs Dutch. This was Talavera white wheat, imported by Mr. Richardson.

"It is worthy of remark that though the return in England is far greater per *acre* than here, the return in *fold* does not exceed ours, viz., from 7 to 19, and it is a question which must be decided by a series of careful experiments whether a simple style of farming applied to a large extent of ground, is not more profitable to the farmer than the English system of raising the largest possible quantity from the smallest piece of ground; as it must be borne in mind that the circumstances of the two countries are exactly opposite. *There* land is very dear; labour cheap, plentiful, and good. *Here* land is cheap enough, and labour deficient in quantity and very bad in quality."

Of other grain, I shall merely observe that brewers tell us that Cape barley contains much less saccharine matter than European. The chevalier barley would be extensively grown, if brewers encouraged the farmers by giving a much higher price; but I do not believe anybody has been at the trouble to try one malting of chevalier barley, and ascertaining what is the fair price to offer the grower.

If ever the reaping machine comes into general use, there are many parts of the colony where oats could be grown extensively, and, but for the reaping, at a comparatively low price. Maize is cultivated to a very large extent in many parts of the colony, and the American corn-sheller should be more made use of. I recollect seeing a lot of women cleaning mealies at a farm near Plettenberg's Bay once, and I felt much inclined to recommend the "sheller," to save labour—but I had not forgotten the answer of my neighbour, the dairy farmer.

Beans, peas, lentils, and the like, which are considered exhausting crops in Europe, are not sown as a rotation here, and indeed some of our soils seem never to get exhausted, whilst some scarcely appear to benefit by a bare fallow.

The nature of the component particles of the soil must, of course, vary much in this very widely-extended colony; but, except in so far as the vegetable substances which, decomposing, form the so-called "pumus," may vary, there is such a sameness in the geological structure, compared to what we see in Europe, that the soil formed by the disintegrated rocks might be expected to be very similar in character also. We want the geologist and chemical tests very much.

We know nothing of the different descriptions of our limestone, or of the effect of lime on the growth of plants in a dry climate; and must bear in mind the rapidity with which lime absorbs moisture.

Then I should like to know whether the chemical composition of our clay-slate is the same as that found in the tertiary and coal formations in Europe; for we have observed that our fountains that issue from beds of clay-slate are all more or less saline.

Well, bones are used as manure in Europe. If our soils came to be analysed and compared to those where bone has been applied with success. and the different degrees of atmospheric moisture be considered, it is not impossible that bone manure may one day come into use.

But let people look at the effect of guano in a dry climate like this, and let us learn to pause before we draw hasty conclusions from what we have seen practised in Europe.

The value of guano on irrigable land, or on other land (if used in quantities to suit the climate), is only beginning to be understood here. I believe that small quantities are from time to time purchased by Cape farmers at £5 or £6 per ton; and if guano turns out to be the manure that produces golden ears of corn in abundance, even in this climate, we may too late discover that we have been killing the hen, by selling the colonial stock (of which there was so large a supply) at the low price of *one pound*.

By means of irrigation, which can, even with merely the present natural facilities, be more extensively practised, our system might be somewhat assimilated to that of Europe, as regards manures. At least, one would think so; but without moisture from the atmosphere, which the leaves of the growing plant require to imbibe, the mere watering of the roots is but partial help, and succeeds only with certain plants.

In a fine climate like this, where you can irrigate, you can have two crops within the twelvemonth. This must wear out the soil in time.

And we have not yet arrived at the golden era, when we

can send for a chemist, as we would for a doctor, to know how long we can go on growing particular crops successively, or when certain ingredients will again be required to be restored to the ground cultivated.

The reaping machine is yet, I think, destined to work great changes in this colony. Nothing but a periodical deficiency of hands, which, in older countries, is often supplied temporarily from the manufactories and other works,—nothing but this irregular deficiency of labour, prevents a larger quantity of grain from being cultivated, whilst harvesting is the most expensive operation in corn-farming.

I was delighted, therefore, when I first saw Hussey's machine at work. I only saw it in action for an hour or two, but half an eye could see that it was a splendid invention.

Some practical friends of mine, who are not in the habit of running down a good thing, tell me to wait (as I do not grow corn extensively) before I purchase one, as some alterations are required, and, no doubt, will soon be made. Some complain that the wind baulks you; others, that it cuts too much straw; others, that when it gets out of repair you have no one to mend it; but, from what I have seen, I shall be very much surprised if something of the sort does not soon supersede the sickle.

The broad-cast sowing machine, which I have not seen, but which an intelligent practical Cape farmer tells me he saw in Edinburgh, and approved of highly,—the thrashing machine, and double Howard plough,—would be a sight to see within a few miles of a people, whose food is locusts, and, if they can get it, wild honey.

I now come to *the Vine*. Any one who has read the interesting statistical papers lately published by M. Blancheton, the French consul (to whom the colony is greatly indebted for his activity and zeal), must feel convinced that there is matter enough in a drop of wine to form the text for more than one lecture. All I can do therefore is, to remind the meeting that I have repeatedly published my views, and such facts as I was enabled during my journey through France and Germany to gather in 1829 and 1830, and that I have invariably endeavoured to impress upon our wine-growers that their attention had not been sufficiently turned to the nature of the soil. I dare say many who have from time to time publicly argued with me through the press, have misunderstood me, believing that I considered attention to fermentation (which involves the temperature of the cellars) of no use whatever. Nothing could be further from my mind: all I said, or meant to say, was, that sufficient attention had not been paid to

the fact, that under the very best and most scientific treatment, there are soils in this colony, as everywhere else, which never can produce a very superior wine; whilst on the contrary, there are soils often on the very same farm, from which a ten times more valuable wine could be produced, but that, whether because the merchants give the farmers no adequate encouragement to keep their best wine separate (as is the case with wool), or whether from want of time and capital to enable them to try experiments during a course of years, I know of no results of any such experiments having been made publicly known.

The culture of the vine has occupied the attention of intelligent colonists and of scientific visitors for a length of time; and yet, except perhaps the Constantia Hock, and here and there a chance cask of Lachryma Christi,—whether it be considered a very patriotic thing to say so or not, murder will out—no one who can afford to drink any other wine will prefer Cape.

Among those who have taken an interest in the culture of the vine, and who have published their remarks, is Mr. Daniel Cloete. His observations on the treatment of the juice of the grape at Madeira, published in the *S. A. Journal* of January and April, 1830, are very valuable and shrewd; but they have the grand defect I always complain of—nothing is said of the soil at Madeira; and, when speaking of the "vley" soils selected for vineyards in this colony, he is quite correct that the grape becomes more watery in such situations, but he recommended boiled must as a remedy. Now, to this day, the wine grown in stiff, retentive clay on the river side, from Bordeaux all the way through Medoc, is watery, and abundant, and very bad, and dirt cheap—whilst Chateaux Margaux, Lafitte, Latour, La Rose, St. Julien, are, most of them, within a thousand yards of these inferior vineyards; but the French have never attempted to make this "vin de pays" equal to the first growths, by boiling or any other plan.

A Mr. Colebrooke, who bought the late Mr. Alexander's farms, visited this colony about 35 years ago. He was a very scientific observer, and tried many experiments.

Mr. Poleman published a pamphlet, showing considerable knowledge of chemistry, on the manufacture of Cape brandy, as far back as 1826.

Not long after, the Wine Depôt Company was established; and in an address spoken by their chairman (Mr. Roos) in 1829, the wine-merchants are accused of combination. He said that Cape wines had not deteriorated, but that they were mixed with sherry, port, &c., and their real value kept

a mystery. I think a few months ago, M. Blancheton made an almost similar complaint. I am unwilling to give an opinion, but, being convinced that the wool trade is not on a sound footing, I am, of course, inclined to listen favourably to the accusations of the wine-farmer (when they are of the same nature); and I want to know whether there is not a greater difference in the actual value of a leaguer of the best, and a leaguer of the worst, wine grown in the Stellenbosch and Paarl districts than £2 sterling (till very lately the prices ranged from £4 to £6), which I believe the minimum and maximum. If not, there is no other country in the world so situated! And I repeat that it is worth the wine-merchant's while to inspect the farms from which he annually makes his largest purchases. Let him observe the varieties of soil on those farms: the abundance of growth, the quantity of manure given, the practice of irrigating, will all indicate sufficiently a great difference in the soil; let him get the grower not to mix the wines grown in these different soils; and let the merchant note carefully the difference, after some time, in these wines so kept separate, although the manufacturing process and mode of fermentation we will suppose to be the same. Then give as much more for the wine from the best soil as he can possibly afford; and see if the difference in price will not soon get known, and whether people will not attend more to the selection of good spots for new vineyards.

In January, 1849, a paper was published in the *Government Gazette*, recommending improvements in the manufacture of wine; but although there may be good things in it, his observations on soil in general, and on that of the Rhine and Medoc in particular, are so full of fallacies, that I could place no further confidence in Mr. Banfield. I have seen too many tourists who pick up information of this sort in steam-boats, and at "tables d'hotes," and who do not scruple to publish it when they get home.

Mr. Thomas Collins Banfield admits that even Liebig erred, when he recommended fermentation in shallow vats. And his own idea is to insert a bent tube in the head of the fermenting tub at one end, and to immerse the other into water, which would absorb the carbonic acid gas, whilst the alcohol and the aroma contained in the essential oil would be retained.

I do not know if any one has tried this. The aroma, which the French call "*bouquet*," is not evolved, except during fermentation, and appears to exist in the juice of the grape in various degrees, according to the nature of the soil in which the vine grows; but it cannot be detected by

analysis as existing in the juice before fermentation has taken place, although the ultimate elements must so exist.

Therefore, I repeat, I have no doubt the season of the year in which we gather our vintage, the dryness of the atmosphere, the variety of the grape, may all, more or less, be aided and counterbalanced by scientific and improved methods of guiding the temperature during fermentation; and by the abstraction or addition of saccharine matter, and so on. But the soil has been too much neglected: it is there I hope to see the first real improvement begun.

I do not say that the identical soil which is preferred in the south of France, where it is moderately moist, and where the sun is just barely warm enough to ripen the grape, will suit a dry hot climate like the Paarl. The Bordeaux wine is grown in quartzose sand; the Johannisberg and other famous Rhenish growths, in disintegrated slate: both are poor and porous soils. It does not follow, however, that such a description of soil, either as to its mechanical formation, that is, its porosity or freeness from moisture, or its chemical constitution, either as abounding, or otherwise, in animal and vegetable matter;—I do not say that such a soil must necessarily produce the best wine in our colony.

I have seen a good deal that appears to militate against that supposition; but the difference of *two thousand* per cent. in value of a bottle of wine grown in one part of the Johannisberg vineyard, and of a bottle of wine grown within quarter of a mile from the spot, is surely evidence enough that if fermentation and art, and all the chemists in Europe could make the juice of every ripe grape produce an equally well-flavoured wine, it would have been done long ago, and the fortunes of thousands secured; but, until they first succeed in Germany and France, we had better not try it here.

That a poor soil produced the best wine must have become proverbial in Cowper's time, who says:—

"No soil like poverty, for growth divine,
As leanest lands produce the richest wine."

Again, I repeat, do not misunderstand me,—I cannot be so unreasonable as to denounce improvement in the manufacture of wine; but I wish to impress upon the wine-grower that he must begin at the *root*, the *tap-root* of the evil; and if we first find out which of our soils grow the best wine, with our present imperfect mode of management, these will be the vineyards, the grapes from which we should try further experiments upon. I believe the prevention of the acetous fermentation, without the intervention of alcohol, is the grand desideratum, but even *that* will not give rich flavour and bouquet to the wine, which must be obtained

from the soil, and I am persuaded we have soils which give bouquet,—Constantia, for instance.

The Lachryma Christi is a pleasant wine. Our climate has some similarity to that from which this grape came. But the Lachryma does not produce abundantly: *there is the secret.* No good wine is made from grapes that produce abundantly, and consequently our growers will not cultivate Lachryma Christi until the merchants offer double or treble the price they do for ordinary wines; and I am afraid our merchants will do no such thing: so the growers just return to quantity to make up for want of quality.

The immense number of varieties and sub-varieties of the grape vine, would alone seem to indicate its susceptibility to adapt itself to the soil into which it is transplanted. Chaptal collected no less than 1500.

As a general rule, small berries, loose, and not very large bunches, not many bunches on the same vine, and not a very good flavour for the table, are characteristics of the grapes that make the best wine in Medoc, on the Rhine, and in Burgundy,—the Carmenere, the Riesling, and the Pineaux, are examples. These, of course, produce a different beverage from that manufactured in London, where the juice of apples, pears, gooseberries, as well as Cape wine, and even Cape brandy, are largely consumed in their extensive laboratories.

I have dwelt longer on the vine than I intended, and fear our time is short. One word more. The Cape Museum may be the place to collect samples of soil from the best vineyards in Europe and this colony, with specimens of subsoil, and an account of their depth, as well as chemical analysis, if possible.

I go on to *the Olive.* On this subject, too, I published, years ago, almost all I had to say. Nothing has yet convinced me that I was wrong then. I still believe the olive would pay here.

It should be planted in vineyards, so that whilst waiting for the profits of the olive, the vineyard would only very gradually decrease. They have talked of grafting on the wild olive; but it is as difficult for me to see the advantage of such a plan, as to explain the text in scripture where the exact contrary practice is spoken of. If we can grow wild olives, we can just as easily grow the tame—for the idea of having olive orchards in the forests is preposterous. I am told, also, that the attempts at grafting have not succeeded.

Through the Botanic Garden, the public ought to be supplied, at least at first; and if the government were to

offer £500 to the first person who produced a pipe of olive oil, I think the experiment would be tried; and whether it proved remunerative (exclusive of course of this reward) or not, even the setting the question at rest would be worth £500 to the colony. I do not think this a illegitimate way of spending the public money: it is not to encourage unnaturally the culture of a plant,—it is merely paying for the performance of an experiment.

After that, I would leave individuals to take care of their own interests.

At present we do not know whether this fruit will ripen here or bear sufficiently—where it does answer, it is a most profitable tree; and yet the tree was imported as far back as Van Riebeek's time.

Of Silk I have also spun very long yarns from time to time in the Cape papers.

I can meet with no work that gives you very clear ideas of the actual labour required in feeding the worms. The expense of reeling the cocoons and growing the mulberry is easily ascertainable. My idea is, that in every missionary institution, and in every large village in South Africa, there exists a sufficiently numerous population of women and children, who, during the season for feeding and rearing the silkworm, could be hired at one shilling per day (finding themselves), to make it very probable that it would pay well (owing to the peculiar mode of life of our labouring population) to grow silk—notwithstanding the otherwise great scarcity of hands. A company in each village might plant a small plot of mulberries (which will grow on very bad soil, but must be irrigated); the expense, excepting the enclosure, would be trifling;—temporary sheds of reeds and rushes might be erected for the worms to be fed in, and if, after a season or two (lasting from six to eight weeks at a time), it was found not to pay, the experiment will have cost little except the loss on wages paid.

It is worth trying; but until I really see half-a-dozen people viewing it in the same light, I shall not consider it worth while to mention the subject again,—but wait patiently—for the Eastern proverb says, "With time and patience the mulberry leaf becomes satin."

It may, or it may not, answer; but as neither capital nor great skill would be required at first, it is clear that nothing but sheer apathy has prevented an attempt from being made hitherto. Some may say, "Oh, my wife and daughters have tried it, but I tell you it will not pay." I dare say, if a man's wife and daughters were to try and make pins in England, even as a sort of family manufacture, it would not

pay; but when pinmakers employ hundreds of people, and carry on the work systematically, I suppose they make fortunes as well as other manufacturers.

If every village in the colony exported £1,000 worth of raw silk on an average, some £50,000 worth might be added to our exports, without disturbing any other source of production.

The disease among the silk-worms, which has lately created such havoc in France, has again drawn public attention to the cultivation of silk; and as that has been done long ago, and frequently, in the most zealous manner, without permanent effect, by two venerable friends, who, I am glad to say, are still in the enjoyment of health and mental faculties, sufficient to aid us with their experience and advice,—I mean Mr. Truter, the former civil commissioner of Worcester, and Mr. Borcherds, the late civil commissioner of Cape Town,—I still hope that they may live to see their appeals at last gratefully listened to.

Mr. Truter tells me that if a sufficient quantity could be obtained, the silk could be exported in the *cocoon*, and the most expensive part of the labour performed in England by machinery. And from Mr Borcherds I learn, that in 1733, the rearing of silkworms had been tried for seven years, and failed. They were entrusted by the Dutch E. I. Company to Mr. Gillaumé, and the worms, though of a promising appearance, would not produce silk.

There must have been a large spinning establishment some 80 years ago, opposite the public offices in Church-square. These buildings I have been told, were burnt down, and there is a tradition that cart loads of worms which died of starvation, had to be thrown into the sea; but I have not been able to find any records of this; and as I am not now attempting to give a history of Cape agriculture, it does not matter much.

Of the different descriptions of *Fruit*, I shall not say much. As an article of export I suppose there is not much prospect of any great increase in the trade; but for home consumption, and to supply shipping with, both dried and other fruit should be better attended to; the varieties more carefully sorted; and new kinds introduced. I think a "pepiniere, a nursery or baumschule," would be useful. In France there used to be one in every department or province, supported, or partly so, by the Government. Tropical fruits, or fruits from colder climates, might be gradually acclimatized; but I do not think the Botanic Garden very well situated for the purpose. I have seen the gooseberry and red-currant, the cherry and strawberry ripen at Orange-

zicht, within a few hundred yards of the spot where the pine-apple and the mango grew and ripened in the open air and without artificial heat, with little or no difference in the elevation of the ground. Oranges of the previous and present year's growth are frequently gathered ripe from the same tree. I do not believe this can be said of any other spot in the world: so much for the climate of Table Valley!

But although our grapes are very fine, and some of the raisins, even in the Bosjesveld, in the Swellendam district, are excellent,—we cannot compete with the Portuguese and Spanish growers. They are more expert, and can afford more labour and attention.

There is no doubt, however, that when the municipality determines to establish a green-market on the square before us,—which, I would say, they ought to have done long ago, if it were not very like speaking ill of a man under his own roof,—and when the immense number of ship passengers, which the breakwater is to enfold, come to spend their money here, many varieties of fruit now rare, or not brought to perfection, will be grown with profit. I have eaten excellent cherries from Banhoek, in the Stellenbosch district; and it wants nothing but a miniature Covent Garden to encourage the growth of hautboys and custard apples in the same plot of ground. They can come by railway from Stellenbosch.

I must now very hurriedly allude to agricultural societies and publications, museums, and lectures.

Have agricultural societies proved of much advantage in this colony? and if not, why not? The advantages have scarcely repaid the time and attention bestowed by several patriotic individuals. One reason appears to me that we have not, in colonies, men with enough of leisure and independent fortune, who can go on from year to year, giving all their attention to such matters, without any prospect of remuneration. This might be overcome, perhaps, by paying the secretary, or other office-bearers; but that would require a large income: and here, I suspect, lies the great secret of our want of success. Hitherto, a number of poor societies, spending £30 or £40 a year each in prizes, with an amateur secretary, were not likely to effect much; but if the whole colony could join to form one grand society; if the secretary were a paid functionary; if even the public treasury were to lend its aid, in proportion to the interest shown by the public; and if shows could be held in four different and widely-separated parts of the colony, coming round to each at the end of every fourth year,—I think the number and value of the stock and agricultural produce shown, as well

as the congregation of practical farmers, would be greater, and such meetings consequently more useful.

Such a society, once established, would be able to publish its transactions periodically; and a journal exclusively devoted to agricultural subjects would record the progress and history of rural economy in this colony, as well as in other parts of the world.

Again, though we cannot expect to see an Agricultural Museum very soon, in time a room in the Natural History Museum might be set apart for agricultural objects.

Samples of wool, grain, seeds, esculent roots, and fruits from different countries, soils, models of implements, and even anatomical preparations, collections of noxious insects and the like, with an agricultural library attached,—would be interesting and highly useful to the scientific, as well as the practical farmer.

Popular lectures on veterinary surgery, agricultural chemistry, and other branches of physical science,—as mechanics, and hydrodynamics, however high-sounding these names may be, might be so arranged as to teach merely the difference in the appearance of a healthy and diseased lung, for instance, the nature, generally, of the component parts of soils, the action of fermentation, the reason why vehicles, ploughs, mills, &c., work more easily, and with less power, under different circumstances; the laws which regulate the pressure of the atmospheric column, explaining the power of different descriptions of pumps; the power of water currents, and the construction of mounds or breakwaters, to oppose them for the purposes of irrigation; and, after all, this would be merely instruction in what is now vulgarly called, by philanthropic English noblemen, "a knowledge of common things."

I am convinced that the time will come when some of our large rivers will be dammed up, and irrigation conducted on an extensive scale. It will change the face of the country. Now, as a practical farmer, I should like nothing better than to listen to a lecture by our esteemed colonial Civil Engineer, or any other gentleman with more leisure, from which I could learn how to estimate the mechanical pressure of large currents of water, and the size, extent, and expense of mounds or dykes to stop their progress; so that, by turning them in different directions from the bed, the land over which these streams would spread might be raised very greatly in value. I should expect to hear Layard's Nineveh quoted, to prove how, with the arts still unperfected, the Tigris was stopped in its career; or the Chevalier Bunsen, to show what was done in Upper Egypt, when men laboured

for tyrants; or more modern authors, who point to Italy and British India for gigantic works of this sort—less exciting and less tempting, perhaps, but more certain of success, and attended with more lasting benefits to a colony than searching for gold, or even copper.

With regard to *Roads*, I am almost sorry I promised to mention them; for it were, perhaps, better to say nothing than too little. That good roads are of incalculable benefit to a country, no one will deny; but let us never forget that, upon the limit to which it is possible to increase the production of the district or country whose isolation we wish to overcome, depends the expense to which we should go in making a market accessible to such district or country.

The philosophy of "Sam Slick" does not militate against this proposition, when he asks—"What is the entire real estate of Halifax worth?"—"Ah," said he, "I see you don't cypher, and Latin and Greek won't do; them air people had no railroads. Well, find out, and then only add ten per cent. to it for increased valy, and if it don't give the cost of a railroad, then my name is not Sam Slick. Well, the land between Halifax and Andoise, is worth ——— nothing: add five per cent. to that, and send the sum to the college, and ax the students how much it comes to. But when you get into Hants county, I guess you have land worth comin' all the way from Boston to see. His Royal Highness the King, I guess, hasn't got the like in his dominions. Well, add 15 per cent. on all them air lands that border on Windsor Basin, and five per cent. to what butts on basin of Mines, and then what do you get? A pretty considerable sum, I tell you. But it's no use to give you the *chalks*, if you can't keep the tallies."

Besides the above, the clockmaker brings his knowledge of human nature to bear—and gives a lesson, which is more or less applicable to every country. He tells us that every people requires winding up, and that a railroad is the key for the population that has run down, that a railroad begets a spirit of enterprise, with all its consequences, and what, is of more value than all—it begets motion.

Yet for all this, let us be cautious. We have no gold mines like those of Australia, and cannot calculate for a certainty upon a million's worth of cartage or wagonage in one year, on a single line, as they do there.

I have lately seen a letter from a gentleman, who was for many years a practical farmer in the best part of this colony, and who is now settled in Canada. He by no means despises the Cape, and admits that it has many great advantages, but he says most emphatically—"Continued droughts

and uncertainty of the seasons will ever prevent the Cape from becoming a very densely-peopled country." In Canada the opening of railroads could be safely attempted; there were immense natural forests, the produce of which could be sent down the inland seas and numerous navigable rivers, and the ground cleared, became at once, every inch of it, valuable for cultivation, and consequently for the maintenance of a dense European immigrant population.

I feel I am in great temptation here to enlarge on the subject of population, as connected with the producing powers of a country not favourably situated for manufacturing industry, and only, to a certain extent, suited for commercial enterprise; but I am very glad to be able to offer, as an excuse, that I might, before I was aware of it, be deep in a branch of our colonial politics.

Schiller somewhere (but I own I have searched for the passage, and cannot find it again) says that the productive power of the soil is only limited by the industry of man. Rousseau, I think in his Emile, says something of the same sort. If they meant, by man, the whole race of man, and by the soil, that of the whole globe, there may be nothing poetical in what they said, and their theory may be correct as long as the world lasts; although, to people with an imaginative turn of mind, *Mechi's* magic crops might lead to the idea of unlimited fertility.

What with railroads, steamers, and electric telegraphs in our days, it is probable that the superabundant population of each country will first find its way to those unoccupied portions of the earth where the advantages of climate, soil, and geographical position are greatest.

There are many other subjects, each almost sufficient for a separate lecture, which hurriedly and superficially as I am afraid I may appear to have treated those now gone through, I shall have to leave altogether untouched, such as the management of forests and timber, the vehicles used in agriculture, farm buildings, aloes, castor, walnut, and pruim besje (pappea capensis), oil, berry-wax, bees, and the like,—nay, if our agricultural society could at one time offer a prize for snock and bricks, we might, with greater right, claim for the operations of tanning and soap-boiling a place among semi-agricultural subjects; and by-the-by, though I was afraid to introduce a soporific at the commencement, I should, if our time had allowed, have felt great pleasure now in speaking of the opium poppy—

"But pleasures are like poppies spread,
You seize the flower, its bloom is shed."

I have now tried to lay before you a sketch of the present

state of agriculture at the Cape, principally with the object of pointing out where we are still in want of information to guide us to further progress; and I beg of any of you who may visit other parts of the world, or who have correspondents abroad, to seize every opportunity that offers itself, to obtain more light and more knowledge of the experience and forward march of improvement in other lands—not to hide it under a bushel, but in order, through the medium of our agricultural societies or the public press, to spread it abroad liberally.

Notwithstanding the candid admission of the drawbacks our colony has to contend with, I have, to the best of my ability, endeavoured to show that the natural barrenness of a country, or rather the dryness of the climate of South Africa, need not necessarily prevent it from taking precedence of many more favoured lands. Indeed, where nature has been most bountiful, agriculture appears to be in the lowest state.

The words of the poet of the "Nation of Holland" may yet, some future day, be as proudly applied to our colony.

"Natuur deed niets voor ons,
Ontroofd ons, zelfs haar gunst;
Al dat dit land ons toont
Is arbeid, vlyt en kunst."

We see that although the poet does not forget to speak in praise of art, he places *arbeid* and *vlyt* in the foreground—Labour and Industry.

Industry, rough power!
Whom labour still attends, and sweat and pain;
Yet the kind source of every gentle art,
And all the soft civility of life:
Raiser of human kind! by nature cast
Naked and helpless, out amid the woods
And wilds, to rude inclement elements,
With various seeds of art deep in the mind
Implanted, and profusely pour'd around
Materials infinite; but idle all.
Still unexerted, in th' unconscious breast
Slept the lethargic powers; corruption still,
Voracious, swallow'd what the liberal hand
Of bounty scatter'd o'er the savage year:
And still the sad barbarian, roving, mix'd
With beasts of prey; or for his acorn meal
Fought the fierce tusky boar; a shivering wretch,
Aghast and comfortless, when the bleak north,
With winter charg'd, let the mix'd tempest fly,
Hail, rain, and snow, and bitter-breathing frost:
Then to the shelter of the hut he fled,

And the wild season sordid pin'd away.
For home he had not; home is the resort
Of love, of joy, of peace and plenty, where
Supporting and supported, polish'd friends
And dear relations mingle into bliss.
But this the rugged savage never felt,
Even desolate in crowds; and thus his days
Roll'd heavy, dark, and unenjoy'd, along:
A waste of time! till industry approach'd,
And rous'd him from his miserable sloth;
His faculties unfolded; pointed out
Where lavish nature the directing hand
Of art demanded; show'd him how to raise
His feeble force by the mechanic powers,
To dig the mineral from the vaulted earth,
On what to turn the piercing rage of fire,
On what the torrent, and the gather'd blast;
Gave the tall ancient forest to his axe;
Taught him to chip the wood and hew the stone,
Till by degrees the finish'd fabric rose;
Tore from his limbs the blood-polluted fur,
And wrapt them in the woolly vestment warm,
Or bright in glossy silk and flowing lawn;
With wholesome viands fill'd his table, pour'd
The generous glass around, inspir'd to make
The life-refining soul of decent wit:
Nor stopp'd at barren bare necessity;
But, still advancing bolder, led him on
To pomp, to pleasure, elegance, and grace;
And, breathing high ambition thro' his soul,
Set science, wisdom, glory in his view,
And bade him be the lord of all below.
Then gathering, men their natural powers combined,
And form'd a *Public*, to the general good
Submitting, aiming, and conducing all.
For this the Patriot Council met, the full,
The free, and fairly-represented whole;
For this they plann'd the holy guardian laws,
Distinguish'd orders, animated arts,
And with joint force oppression chaining, set
Imperial justice at the helm; yet still
To them accountable: nor slavish dream'd
That toiling millions must resign their weal,
And all the honey of their search to such
As for themselves alone themselves have raised.

Saul Solomon & Co., Steam Printing Office, 63, Longmarket-street.